

NEW SPECIES OF ANDRENA FROM CALIFORNIA  
(HYMENOPTERA)

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The types of the species described below are in the collection of the Citrus Experiment Station, Riverside, California, with the exception of those paratypes whose disposition is mentioned under the respective species.

*Andrena* (*Ptilandrena*) *suavis* Timberlake, n. sp.

This species is closely allied and similar to *A. complexa* Viereck, but is considerably less greenish and has a much more distinctly fasciate abdomen. These two species have a short suberect finely plumose scopa, and the males have the face dark, without light markings. On the basis of these characters they fall in *Ptilandrena*, as defined by Robertson, rather than *Pterandrena*.

Female. Black with tergum of abdomen very dark green and a slight dark greenish luster on the head and mesonotum. Pubescence pale ochreous, paler on the face and underparts. Head considerably broader than long. Foveæ short and very narrow, extending from level of middle of antennal sockets to a little below the summit of the eyes and very widely separated from the lateral ocelli. Malar space very short and linear. Clypeus little produced, gently convex, tessellate and somewhat dullish, finely, evenly and closely punctured, the punctures imparting a fine roughness to the surface. Rest of face below antennæ with a very similar sculpture. Frons finely longitudinally striate. Process of labrum broadly truncate, about twice as broad as long, with the apical margin just perceptibly concave. Hair of head entirely light except a few blackish hairs on the scapes and on each side of frons next to the fovea. Foveæ also blackish on dorsal half except when viewed from above. Hair of face below antennæ abundant, rather short, erect, plumose, and not concealing surface. Antennæ blackish, with the third joint a little shorter than the next three joints combined. Thorax almost throughout with a very uniform sculpture, tessellate and rather dull, with obscure punctures, which become a little more evident on the pleura and still more so on the sides of the propodeum so that the surface is roughened. Enclosure of propodeum small, triangular, defined by the fine granular-tessellated sculpture. Hair of thorax rather long, erect, slightly shorter on the notum, and

of moderate density. Floccus on sides of propodeum very long and strongly plumose. Tergum of abdomen somewhat shiny, minutely tessellate, and with very fine rather sparse punctures. Pubescence of tergum short, suberect, rather thin, but forming a narrow complete fascia at apex of tergites II to IV. Fimbria fuscous or brownish, overlaid with lighter hairs. Legs black with tibial spurs pale testaceous. Hind basitarsi long, and about two-thirds as wide as the hind tibiæ at apex. Middle basitarsi a little wider than the hind pair. Hairs of legs entirely light, or the scopa may become a little fuscous towards base above. Hair on inner side of tarsi golden ochreous. Wings subhyaline, not darkened at apex; the veins (except subcosta) and stigma brown. Basal vein a little postfurcal (but sometimes nearly or quite interstitial with the nervulus). Second cubital cell nearly quadrate, receiving the first recurrent at the middle. Length, 8.5 mm.; fore wing, 6.8 mm.

Male. Similar to the female except in usual sexual characters. The metallic coloration more bluish than greenish. Pubescence similar, but hair of face below antennæ considerably longer and denser, with that of clypeus bright ochreous (fading to whitish) and with much black hair on sides of face and on the scapes and a little on cheeks behind summit of eyes. In some specimens there are a few black hairs on the pleura just below the base of the wings. Fascia on tergites II to IV thinner and more or less interrupted in middle. Head much broader than long. Process of labrum much as in the female but in some specimens more distinctly emarginate on apical margin. Antennæ blackish, joint III subequal to IV plus V. Middle joints of flagellum slightly longer than thick. Cheeks rather broad and rounded behind, the widest part a little above the middle of eyes. Sculpture throughout very similar to that of the female. Length 7 mm.; fore wing 5.4 mm.

Described from 9 females, and 29 males (holotype, female, allotype, and paratypes) collected at Berkeley, Calif., on *Ranunculus californicus*, February 24 to March 11 (R. M. Bohart); one female (paratype) without data from old insectary collection at Sacramento; one female (paratype), Angel Island, San Francisco Bay (G. Boettcher); and one female, one male (paratypes), Griffith Park, Los Angeles, on *Ranunculus*, March 14, 1936 (E. G. Linsley). The holotype and allotype were collected March 11, 1935.

The series from the type locality shows little variation not noted above except that the black hairs on the sides of the face in the female occasionally are more numerous and descend below the antennæ. The females vary from 8 to 9.5 mm. in length, and males from 6.75 to 7.5 mm. The male and female from

Los Angeles are more greenish (this color persisting also in the male) and have darker stigma and veins, especially in the male, where they are almost black.

This species is one of the hosts of *Stylops pacificus* Bohart.

*Andrena* (*Micrandrena*) *dinognatha* Timberlake, n. sp.

This remarkable species, with its extremely large head, is suggestive of the recently described *A. vandykei* Ckll. It differs from the description of *vandykei* in the shape of the mandibles, lack of a long slender spine on the malar space, the yellow band of clypeus reaching lateral margins, the very dark stigma and nervures, and in other details.

Male. Black, the tegulæ and tarsi a little brownish and spurs of tibiæ pale testaceous. Head subquadrate, nearly twice as broad as thorax, about one and one-third times broader than long, and widest at the anterior end. Clypeus very large, depressed, but the outer half of the lateral extensions convex and almost pulvinate. The anterior margin of clypeus between these bosses broadly concave. Clypeal band light yellow, broad, covering whole width and almost entire length of clypeus on the lateral extensions and slightly more than half the length in median line. Dorsal margin of the band rather strongly notched on each side to form three nearly equal lobes, of which the middle one is a little longer and more or less emarginate. Cheeks very broad, subangular, with the widest part well above the middle of eye. Malar space rather well developed but transverse, and widening behind. The cheeks and malar space combined form a wide space behind and in front of eye, and the antero-inferior corner of this space forms a sharp angle but is not produced into a spine. Mandibles very large and long, bent at right angles a little beyond the strongly expanded base, having the portion beyond the bend nearly straight, moderately slender, with a very blunt inner tooth close to the apex. Labrum small, transverse, the process hardly elevated above rest of surface, polished, transversely quadrate, its apical margin coinciding with margin of labrum. Vertex and frons very finely, almost granular-tessellate, the frons also finely striate. Face below antennæ more shiny, finely tessellate, and the clypeus still more shiny, with no punctures anywhere on face except extremely minute ones. Cheeks finely tessellate and dullish. Antennæ blackish, rather long, the joints of flagellum mostly about one and one-third times longer than thick. Joint III a little shorter than IV plus V. Thorax with nearly uniform sculpture, minutely tessellate and dullish, with very fine indistinct punctures. Enclosure of propodeum small, more opaque and more granular-tessellate. Abdomen somewhat shiny, finely tessellate and almost

impunctate. Wings nearly hyaline, not darker at apex. Veins very dark, almost black, the stigma a little more reddish. Venation of the *Micrandrena* type, with the first intercubitus close to the stigma. Pubescence rather thin and long, pale fulvous, becoming paler beneath and creamy on the clypeus. Sides of face, scapes, and cheeks behind summits of eyes with considerable black hair. Middle segments of the abdomen with pubescence short, thin, depressed, with no indication of bands. Length, 7 mm.; fore wing, 5.7 mm.

The length of body in my small series varies from about 6 to 7 mm. The size of the head varies considerably and in the smallest specimen is hardly half as large as in the holotype, and the peculiar modifications of the clypeus and mandibles are much less accentuated. The head also is less quadrate and not broader anteriorly but is transversely oval.

Described from five males (holotype and paratypes) collected at Davis, Calif., February 3 and March 2, 1936 (R. M. Bohart); and one male (paratype) in collection of the Oregon State Agricultural College, collected at Corvallis, Oregon, May 8, 1927 (Velma T. Shattuck). Mr. Bohart writes that the Davis specimens were frequent in early spring on a coiled orange flowered weed, which I presume is *Amsinckia*.

*Andrena* (*Platandrena*) *pensilis* Timberlake, n. sp.

This is easily distinguished from *A. nasonii* Rob. and from the other Pacific Coast species of *Platandrena* by the shining clypeus with long pendent hairs in the middle, by the opaque mesonotum, and dullish abdomen which has the first tergite finely and densely punctured.

Female. Black, including mandibles, antennæ, legs and tegulæ. Tibial spurs yellowish white. Head much broader than long. Clypeus large, depressed on disk, shining, finely, rather closely punctured, the punctures becoming finer and closer laterally. Sides of face below antennæ sculptured much like the sides of clypeus. Frons and vertex dull, minutely striate. Cheeks rather shiny, with a fine irregular reticulation. Facial foveæ cuneate, very broad and light brown above, almost acute below and ending slightly below level of top of clypeus. Third antennal joint almost as long as the next three joints combined. Process of labrum low, very broad, rounded at apex. Mesonotum opaque, very minutely ruguloso-tessellate and with very minute indistinct punctures, but the scutellum anteriorly a little shiny in some lights. Mesopleura convex anteriorly, somewhat flattened

behind, with a weak transverse ridge just above middle coxæ. Surface of pleura dull above, much like the notum, more shiny below. The dorso-posterior surface of propodeum dull, the enclosure large, granular-reticulate and further defined by a raised line. Sides of propodeum meeting dorsal surface in a right angle, the surface tessellate, rather shiny, impunctate. Middle tibiæ strongly cuneate, fully twice as wide at apex as the middle or hind basitarsi. Abdomen broad (about 3.25 mm. wide), slightly shiny, very finely tessellate and minutely punctured. On disk of tergite I the punctures are distinct and very close, but they become progressively fainter and are much sparser on tergites II to IV. Tergite II depressed about one-third in the middle. Venter of abdomen more shiny, with minute piliferous punctures. Pubescence ochreous, nearly uniform in tinge throughout, except as noted. Hair of head moderately abundant, densest on the cheeks. Hair of clypeus thin, rather erect and not very long, except in middle where there are a few very long coarser fuscous or brownish hairs pendent from upper part of disk. These long hairs hug the surface, except that they curl out at tips, and the whole hair of clypeus has a frizzly appearance. Hair of mesonotum mostly very short, with a few longer hairs intermixed; that of the pleura much longer. Floccus of propodeum long and curled, the hairs finely plumose. Anterior margin of the sides of propodeum with a vertical row of similar hairs which, with those on dorsal margin, form a large pocket to hold pollen. Hair of legs pale, becoming golden ochreous on inner side of tarsi. Flocculus of hind trochanters moderately long. Scopa of hind tibia short, dense, the hairs on outer surface almost vertically erect and not at all concealing surface, those on lower margin a little longer, very minutely plumose, and curled backward at tips (the longest of these scarcely longer than half the greatest width of tibia). Hairs on dorsal margin of tibia more reclinate, denser, more evidently plumose. Abdomen with pale hair, very fine and depressed on disk of tergites and forming a narrow fascia at apex of tergites II to IV, broadly interrupted in middle on II. Fimbria pale brownish, lighter toward the sides. Wings subhyaline, not darker at apex. Stigma and veins, except subcosta, reddish brown. Basal vein meeting nervulus. Second cubital cell rather small, a little oblique, and receiving recurrent vein a little beyond middle. Length, 9.5 mm.; fore wing, 6.6 mm.

Male. Similar to the female, except in usual sexual characters, but abdomen hardly fasciate. Pubescence entirely light, pale ochreous, or whitish. Clypeus covered with rather dense hair, forming the usual brush. Sculpture very nearly as in the female, but enclosure of propodeum very finely, mostly longitudinally, wrinkled; first tergite with very fine, much less dense punctures than in the female, not differing obviously from following segments. Head very ordinary in structure, wider than

long. Cheeks rounded behind, not very wide. Mandibles ordinary, toothed within, not at all decussate. Antennæ of moderate length, the flagellum rather stout; third joint about equal to IV plus V; middle joints of flagellum about as long as wide. Wings as in the female. Length, 8.5 mm.; fore wing, 5.9 mm.

Described from four females and seven males (holotype female, allotype and paratypes) collected at Davis, Calif., on *Baeria*, April 24, 1936 (R. M. Bohart); two females (paratypes), Stanford University, May (collector unknown) and two females and one male (paratypes) without data from the old insectary collection at Sacramento. I have also determined stylopized specimens for Mr. Bohart from Yolo Causeway on *Baeria* and *Downingia pulchella*, April 24 and May 5; two males from Davis, on willow, April 1, and one male, Alturas, Modoc Co., in June.

The male differs from *A. nasonii* Rob. in its considerably larger size, much longer third antennal joint, much more shiny clypeus and in basal nervure meeting nervulus. It differs from males of *A. angustitarsata* Vier. and *A. opaciventris* Ckll., in having no dark (fuscous or blackish) hairs on sides of face, and in the much shorter antennæ, with the third joint relatively much longer.

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## TWO NEW AMERICAN BUMBLEBEES

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### *Bombus* (*Bombus*) *bruneri* Swenk, n. sp.

Female. Length 15.5 mm.; width of abdomen at second tergite, 8.5 mm. Head elongated, the malar space distinctly longer than its width at apex, about one-third as long as the eye. Clypeus polished and finely, weakly and sparsely punctured except at margins. Antennal joint III greatly exceeding V, nearly = IV+V. Pubescence ferruginous red, paling to yellowish gray on lower pleuræ which have no black pile; pubescence of segment VI and venter whitish, also without black hairs; legs wholly clothed with black hairs thinly intermixed among the orange ones, the cheeks and extreme sides of the occiput black-haired. No carina on epipygium or hypopygium. Wings very slightly darkened, almost subhyaline.

Holotype: Worker, "Texas," in collection of University of Nebraska.